



Technical Application Guide

Introducing MasterConnect LED lamps - smart retrofit LED lamps that give you an easy and seamless way to upgrade to connected lighting. Simply set up with an intuitive app, MasterConnect LED lamps can be programmed to maximize energy savings, while providing wireless and automated light for your comfort and convenience.

What's more, your lighting system is fully scalable and upgradable with MasterConnect. If you want to enjoy further benefits such as remote control or management dashboard, you can simply keep the currently installed lamps and add a gateway to experience all the advantages of a cloud-based system. There's no better way to take lighting solutions to the next level.



interact
ready.

Product Features

Ballast Compatibility

- Compatible with electro-magnetic ballast or direct mains.
- Quick and easy installation.

Mechanical Design

- Rotatable end-cap up to 90 deg.
- IEC T8 dimension, perfect fit into existing fluorescent luminaires.

Connectivity

- Reliable and secure wireless mesh technology, nominal range 12m.
- Easy commissioning and configuration with mobile app.
- Interact ready, seamless integration with Interact.

Control Functionality

- Automatic on/off, dimming based on occupancy detection and daylight variation.
- Personal dimming and scene setting with wireless switch.
- High-end trimming to fit various application needs.
- Works with and without gateway.

Energy Saving

- Energy savings of 50% compared to fluorescent lamps [1].
- Up to 40% additional energy saving when used with advanced control, such as dimming, occupancy sensing and daylight harvesting [2].
- Energy label A++.

User comfort

- Uniform light output and superior optical efficiency with advanced optical design.
- Personal light setting to enhance user comfort and productivity.
- Typical CRI 83.

Reliability

- Reliable operation between -20°C and +45°C ambient temperature.
- Tested to B50 L70 requirement. Lamps are rated for 60,000 hours.
- 200,000 switching cycles.

Safety

- Over voltage and over temperature protection.
- Complies with IEC safety requirements.
- Misuse protected. Passed 4kV high-pot test and 1kV surge test.

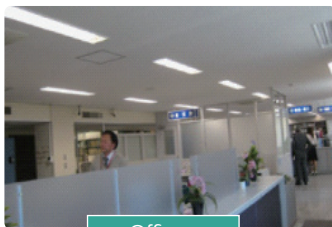
Environment

- No Mercury.
- No breakage and pollution risk.

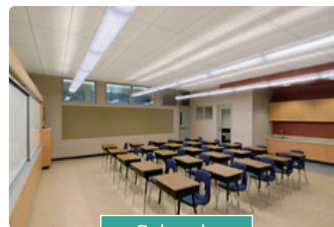
[1] Compared to 18W/36W/58W TL system with reference ballast. Lamps are set at 100% light level.
[2] Savings based on published articles and Signify internal study.



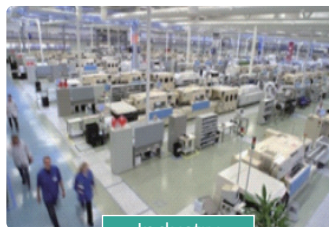
Application



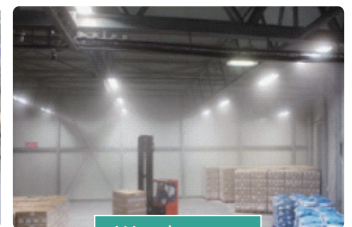
Offices



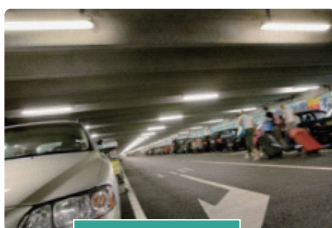
Schools



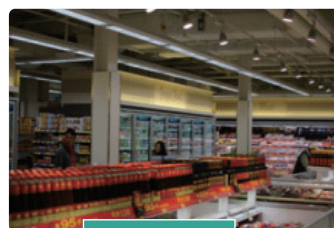
Industry



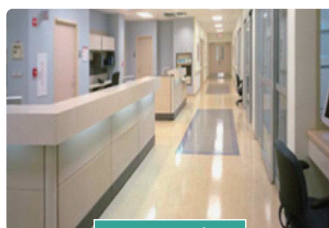
Warehouses



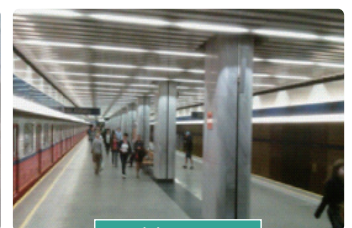
Parking Lots



Retail



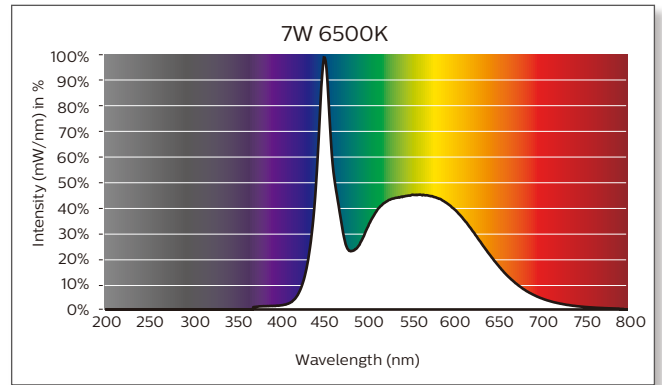
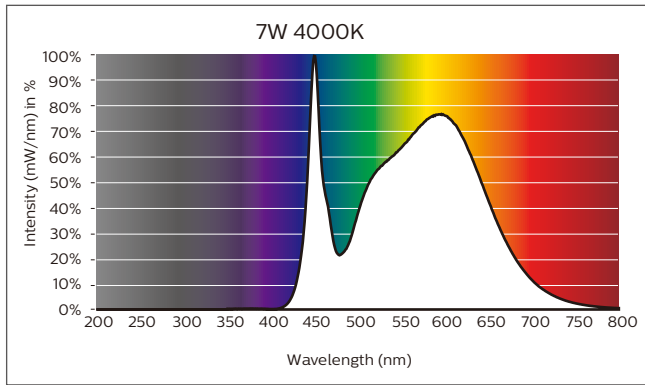
Hospitals



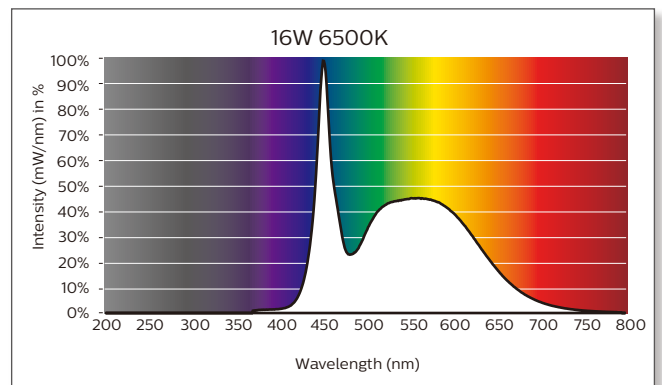
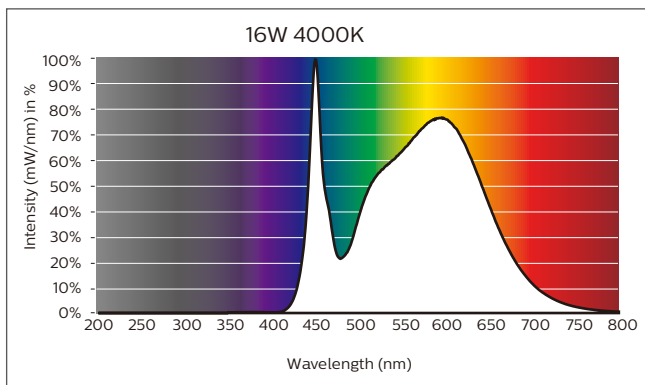
Public Areas

Spectral Power Distribution

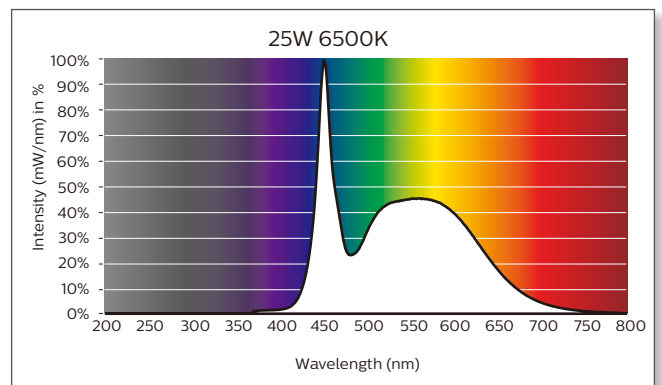
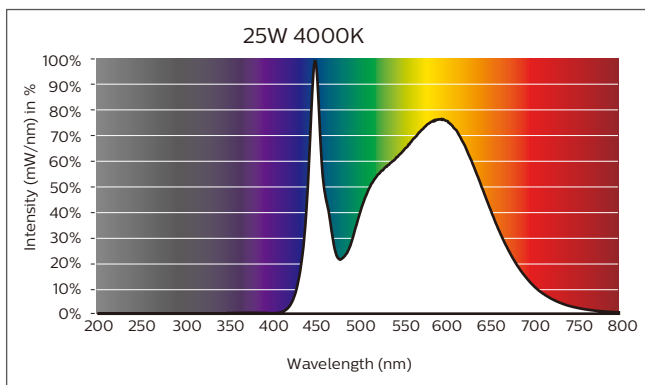
600mm



1200mm



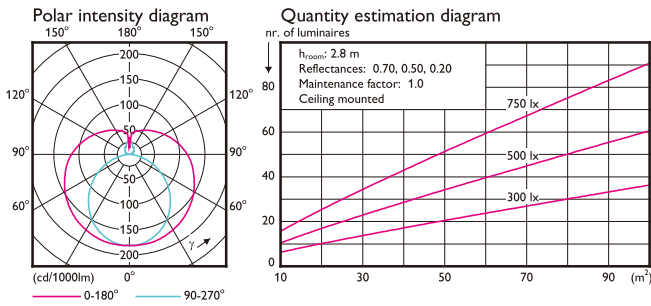
1500mm



Photometric Diagrams

9290022953 1 x MC LEDtube IA 600mm HO 7W840 T8

1 x 1050 lm



Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)											
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00	0.00
0.60	0.41	0.39	0.39	0.38	0.37	0.30	0.27	0.22	0.25	0.21	0.17	0.17
0.80	0.51	0.48	0.48	0.47	0.45	0.37	0.34	0.29	0.31	0.27	0.22	0.22
1.00	0.59	0.55	0.56	0.54	0.52	0.44	0.40	0.35	0.36	0.32	0.26	0.26
1.25	0.67	0.61	0.63	0.61	0.58	0.51	0.46	0.41	0.42	0.37	0.31	0.31
1.50	0.73	0.67	0.69	0.66	0.63	0.56	0.51	0.46	0.46	0.42	0.34	0.34
2.00	0.83	0.74	0.78	0.74	0.70	0.64	0.58	0.53	0.52	0.49	0.40	0.40
2.50	0.90	0.79	0.84	0.79	0.75	0.69	0.63	0.59	0.57	0.54	0.45	0.45
3.00	0.95	0.83	0.89	0.83	0.79	0.73	0.67	0.63	0.60	0.57	0.48	0.48
4.00	1.01	0.88	0.95	0.89	0.83	0.79	0.72	0.68	0.65	0.62	0.52	0.52
5.00	1.06	0.91	0.99	0.92	0.86	0.82	0.75	0.72	0.68	0.66	0.55	0.55

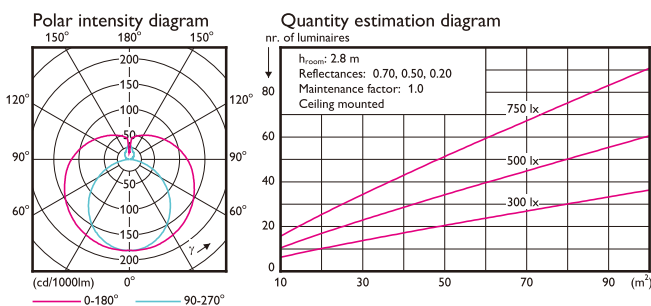
Luminance Table

Plane	0.0	15.0	30.0	45.0	60.0	75.0	90.0
Cone							
45.0	7141	6877	6040	7037	7473	8267	9598
50.0	6965	6658	6587	6759	7138	7891	9248
55.0	6835	6481	6373	6516	6810	7483	8807
60.0	6739	6335	6189	6302	6495	7055	8292
65.0	6678	6226	6044	6129	6197	6601	7659
70.0	6650	6159	5953	6029	5947	6141	6876
75.0	6699	6170	5945	6024	5765	5678	5829
80.0	6812	6237	5992	6080	5632	5208	4329
85.0	6962	6343	6086	6201	5611	4890	2269
90.0	7162	6509	6263	6450	5913	5320	819

(cd/m²)

9290022954 1 x MC LEDtube IA 600mm HO 7W865 T8

1 x 1050 lm



Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)											
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00	0.00
0.60	0.41	0.39	0.39	0.38	0.37	0.30	0.27	0.22	0.25	0.21	0.17	0.17
0.80	0.51	0.48	0.48	0.47	0.45	0.37	0.34	0.29	0.31	0.27	0.22	0.22
1.00	0.59	0.55	0.56	0.54	0.52	0.44	0.40	0.35	0.36	0.32	0.26	0.26
1.25	0.67	0.61	0.63	0.61	0.58	0.51	0.46	0.41	0.42	0.37	0.31	0.31
1.50	0.73	0.67	0.69	0.66	0.63	0.56	0.51	0.46	0.46	0.42	0.34	0.34
2.00	0.83	0.74	0.78	0.74	0.70	0.64	0.58	0.53	0.52	0.49	0.40	0.40
2.50	0.90	0.79	0.84	0.79	0.75	0.69	0.63	0.59	0.57	0.54	0.45	0.45
3.00	0.95	0.83	0.89	0.83	0.79	0.73	0.67	0.63	0.60	0.57	0.48	0.48
4.00	1.01	0.88	0.95	0.89	0.83	0.79	0.72	0.68	0.65	0.62	0.52	0.52
5.00	1.06	0.91	0.99	0.92	0.86	0.82	0.75	0.72	0.68	0.66	0.55	0.55

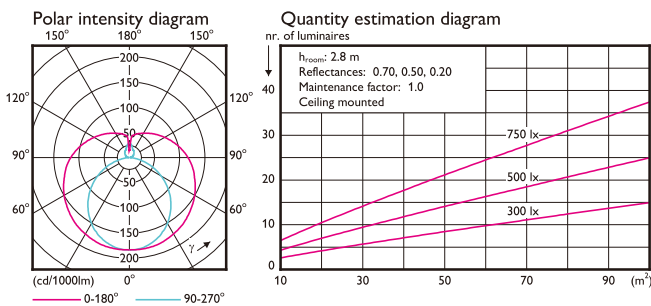
Luminance Table

Plane	0.0	15.0	30.0	45.0	60.0	75.0	90.0
Cone							
45.0	7141	6877	6040	7037	7473	8267	9598
50.0	6965	6658	6587	6759	7138	7891	9248
55.0	6835	6481	6373	6516	6810	7483	8807
60.0	6739	6335	6189	6302	6495	7055	8292
65.0	6678	6226	6044	6129	6197	6601	7659
70.0	6650	6159	5953	6029	5947	6141	6876
75.0	6699	6170	5945	6024	5765	5678	5829
80.0	6812	6237	5992	6080	5632	5208	4329
85.0	6962	6343	6086	6201	5611	4890	2269
90.0	7162	6509	6263	6450	5913	5320	819

(cd/m²)

9290022104 1 x MC LEDtube IA 1200mm UO 16W840 T8

1 x 2500 lm



Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)											
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00	0.00
0.60	0.42	0.40	0.40	0.39	0.38	0.30	0.28	0.23	0.25	0.21	0.17	0.17
0.80	0.52	0.49	0.49	0.48	0.46	0.38	0.35	0.30	0.32	0.27	0.22	0.22
1.00	0.60	0.56	0.57	0.55	0.53	0.45	0.41	0.36	0.37	0.33	0.26	0.26
1.25	0.68	0.63	0.64	0.62	0.59	0.52	0.47	0.42	0.42	0.38	0.31	0.31
1.50	0.75	0.68	0.70	0.67	0.64	0.57	0.52	0.47	0.47	0.42	0.35	0.35
2.00	0.85	0.76	0.79	0.75	0.72	0.65	0.59	0.54	0.53	0.50	0.41	0.41
2.50	0.91	0.81	0.86	0.81	0.77	0.71	0.64	0.60	0.58	0.55	0.46	0.46
3.00	0.96	0.84	0.90	0.85	0.80	0.75	0.68	0.64	0.62	0.58	0.49	0.49
4.00	1.03	0.89	0.96	0.90	0.85	0.80	0.73	0.70	0.66	0.63	0.53	0.53
5.00	1.08	0.92	1.00	0.94	0.88	0.84	0.77	0.73	0.69	0.67	0.56	0.56

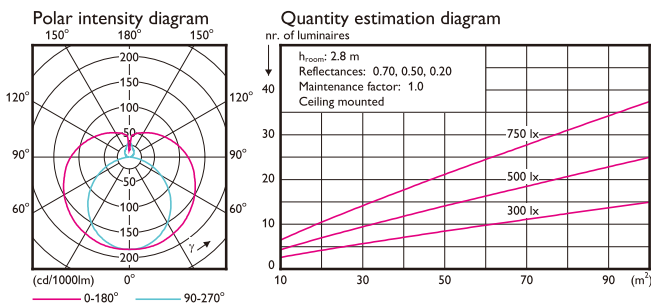
Luminance Table

Plane	0.0	15.0	30.0	45.0	60.0	75.0	90.0
Cone							
45.0	8613	8320	8302	8569	9134	10147	11841
50.0	8402	8057	7999	8239	8737	9709	11457
55.0	8245	7845	7744	7950	8350	9233	10965
60.0	8128	7671	7525	7698	7978	8733	10390
65.0	8055	7542	7353	7495	7628	8201	9678
70.0	8021	7463	7248	7382	7337	7665	8793
75.0	8080	7478	7244	7388	7132	7130	7594
80.0	8216	7562	7308	7469	6990	6591	5832
85.0	8397	7694	7430	7632	6993	6258	3314
90.0	8639	7900	7655	7958	7409	6931	1976

(cd/m²)

9290022105 1 x MC LEDtube IA 1200mm UO 16W865 T8

1 x 2500 lm



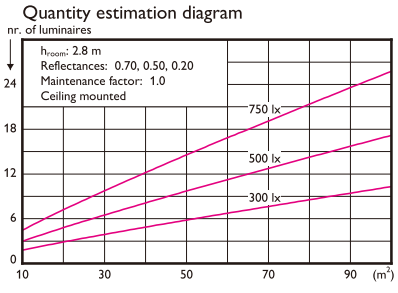
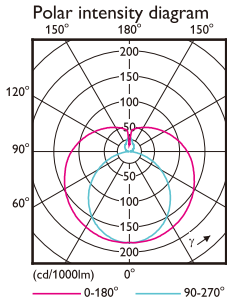
Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)											
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00	0.00
0.60	0.42	0.40	0.40	0.39	0.38	0.30	0.28	0.23	0.25	0.21	0.17	0.17
0.80	0.52	0.49	0.49	0.48	0.46	0.38	0.35	0.30	0.32	0.27	0.22	0.22
1.00	0.60	0.56	0.57	0.55	0.53	0.45	0.41	0.36	0.37	0.33	0.26	0.26
1.25	0.68	0.63	0.64	0.62	0.59	0.52	0.47	0.42	0.42	0.38	0.31	0.31
1.50	0.75	0.68	0.70	0.67	0.64	0.57	0.52	0.47	0.47	0.42	0.35	0.35
2.00	0.85	0.76	0.79	0.75	0.72	0.65	0.59	0.54	0.53	0.50	0.41	0.41
2.50	0.91	0.81	0.86	0.81	0.77	0.71	0.64	0.60	0.58	0.55	0.46	0.46
3.00	0.96	0.84	0.90	0.85	0.80	0.75	0.68	0.64	0.62	0.58	0.49	0.49
4.00	1.03	0.89	0.96	0.90	0.85	0.80	0.73	0.70	0.66	0.63	0.53	0.53
5.00	1.08	0.92	1.00	0.94	0.88	0.84	0.77	0.73	0.69	0.67	0.56	0.56

Luminance Table

Plane	0.0	15.0	30.0	45.0	60.0	75.0	90.0
Cone							
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50.0	8402	8057	7999	8239	8737	9709	11457
55.0	8245	7845	7744	7950	8350	9233	10965
60.0	8128	7671	7525	7698	7978	8733	10390
65.0	8055	7542	7353	7495	7628	8201	9678
70.0	8021	7463	7248	7382	7337	7665	8793
75.0	8080	7478	7244	7388	7132	7130	7594
80.0	8216	7562	7308	7469	6990	6591	5832
85.0	8397	7694	7430	7632	6993	6258	3314
90.0	8639	7900	7655	7958	7409	6931	1976

(cd/m²)



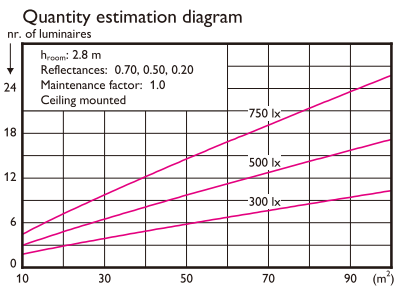
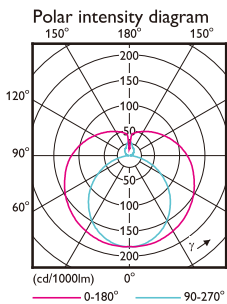
Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)										
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00
0.60	0.41	0.39	0.39	0.38	0.37	0.30	0.27	0.22	0.25	0.21	0.17
0.80	0.51	0.48	0.48	0.47	0.45	0.37	0.34	0.29	0.31	0.27	0.22
1.00	0.59	0.55	0.56	0.54	0.52	0.44	0.40	0.35	0.36	0.32	0.26
1.25	0.67	0.61	0.63	0.61	0.58	0.51	0.46	0.41	0.42	0.37	0.31
1.50	0.73	0.67	0.69	0.66	0.63	0.56	0.51	0.46	0.46	0.42	0.34
2.00	0.83	0.74	0.78	0.74	0.70	0.64	0.58	0.53	0.52	0.49	0.40
2.50	0.90	0.79	0.84	0.79	0.75	0.69	0.63	0.59	0.57	0.54	0.45
3.00	0.95	0.83	0.89	0.83	0.79	0.73	0.67	0.63	0.60	0.57	0.48
4.00	1.01	0.88	0.95	0.89	0.83	0.79	0.72	0.68	0.65	0.62	0.52
5.00	1.06	0.91	0.99	0.92	0.86	0.82	0.75	0.72	0.68	0.66	0.55

Luminance Table

Plane Core	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	10065	9729	9714	10033	10702	11899	13900
50.0	9818	9422	9361	9648	10241	11392	13461
55.0	9635	9174	9063	9312	9900	10839	12897
60.0	9498	8971	8808	9018	9358	10258	12236
65.0	9413	8821	8608	8782	8950	9642	11419
70.0	9373	8729	8485	8653	8614	9020	10401
75.0	9443	8747	8482	8662	8377	8401	9019
80.0	9601	8846	8559	8760	8216	7779	6978
85.0	9813	9001	8703	8955	8226	7404	4043
90.0	10095	9244	8969	9342	8726	8232	2887

(cd/m²)



Utilisation factor table

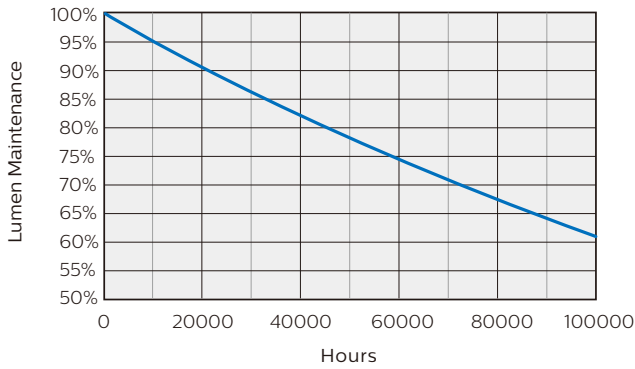
Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)										
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00
0.60	0.41	0.39	0.39	0.38	0.37	0.30	0.27	0.22	0.25	0.21	0.17
0.80	0.51	0.48	0.48	0.47	0.45	0.37	0.34	0.29	0.31	0.27	0.22
1.00	0.59	0.55	0.56	0.54	0.52	0.44	0.40	0.35	0.36	0.32	0.26
1.25	0.67	0.61	0.63	0.61	0.58	0.51	0.46	0.41	0.42	0.37	0.31
1.50	0.73	0.67	0.69	0.66	0.63	0.56	0.51	0.46	0.46	0.42	0.34
2.00	0.83	0.74	0.78	0.74	0.70	0.64	0.58	0.53	0.52	0.49	0.40
2.50	0.90	0.79	0.84	0.79	0.75	0.69	0.63	0.59	0.57	0.54	0.45
3.00	0.95	0.83	0.89	0.83	0.79	0.73	0.67	0.63	0.60	0.57	0.48
4.00	1.01	0.88	0.95	0.89	0.83	0.79	0.72	0.68	0.65	0.62	0.52
5.00	1.06	0.91	0.99	0.92	0.86	0.82	0.75	0.72	0.68	0.66	0.55

Luminance Table

Plane Core	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	10065	9729	9714	10033	10702	11899	13900
50.0	9818	9422	9361	9648	10241	11392	13461
55.0	9635	9174	9063	9312	9900	10839	12897
60.0	9498	8971	8808	9018	9358	10258	12236
65.0	9413	8821	8608	8782	8950	9642	11419
70.0	9373	8729	8485	8653	8614	9020	10401
75.0	9443	8747	8482	8662	8377	8401	9019
80.0	9601	8846	8559	8760	8216	7779	6978
85.0	9813	9001	8703	8955	8226	7404	4043
90.0	10095	9244	8969	9342	8726	8232	2887

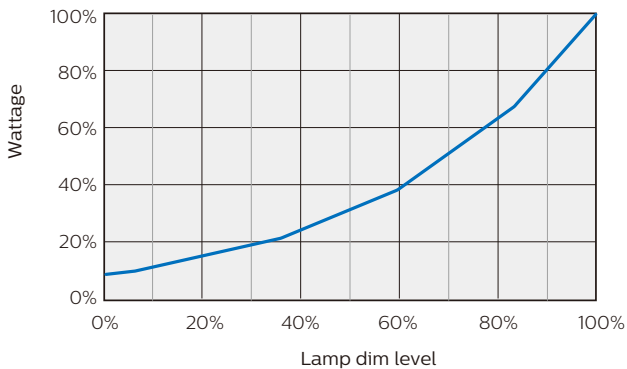
(cd/m²)

Lifetime and Lumen Maintenance



Philips MasterConnect LEDtube EM/Mains T8 has a lifetime of 60,000 hours. This is defined as the number of hours when 50% of a large group of identical lamps drop below 70% of its initial lumen.

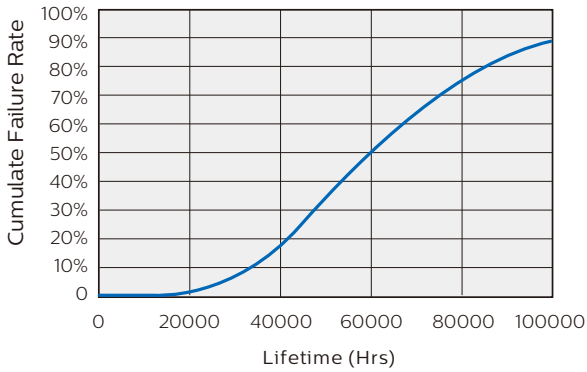
Dimming Curve



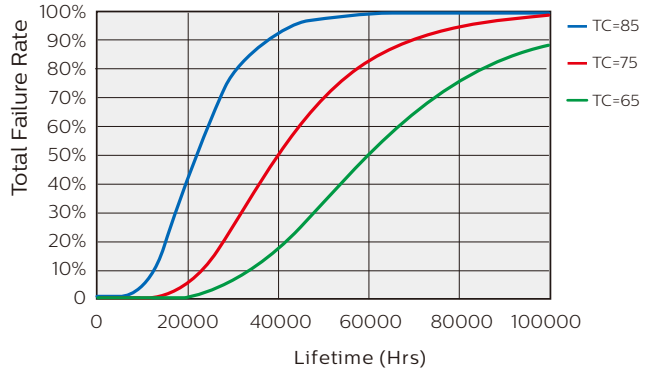
Philips MasterConnect LEDtube EM/mains T8 can be dimmed via wireless control signal. Please refer to the figure for lamp power consumption at dimmed level.

Lifetime and Failure Rate

Lifetime vs. Failure rate @Ta 25°C



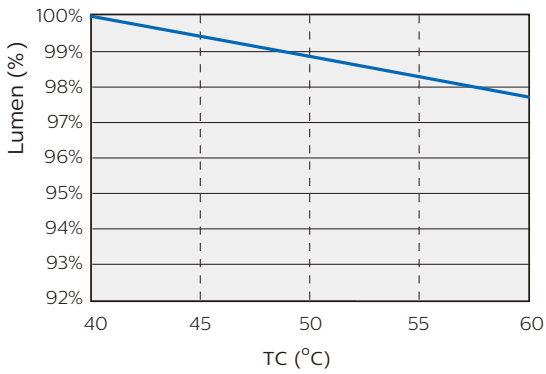
Lifetime vs. Failure Rate vs. Tcase



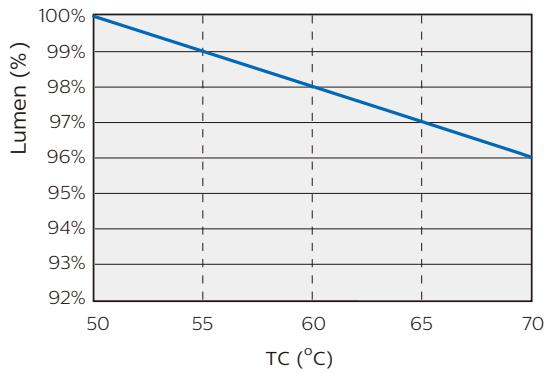
Temperature

Operating temperature	Toperating	min -20°C	max +45°C
Storage temperature	Tstorage	min -40°C	max +65°C

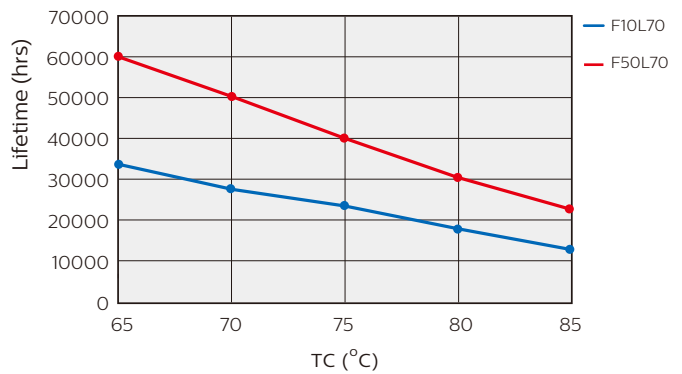
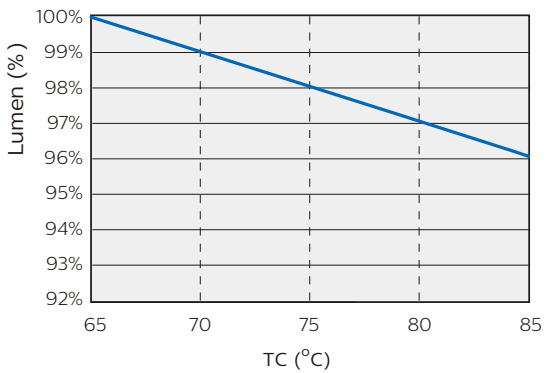
2FT



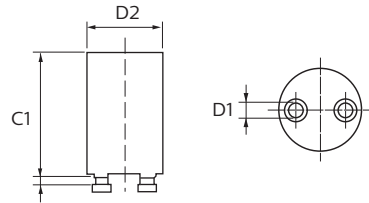
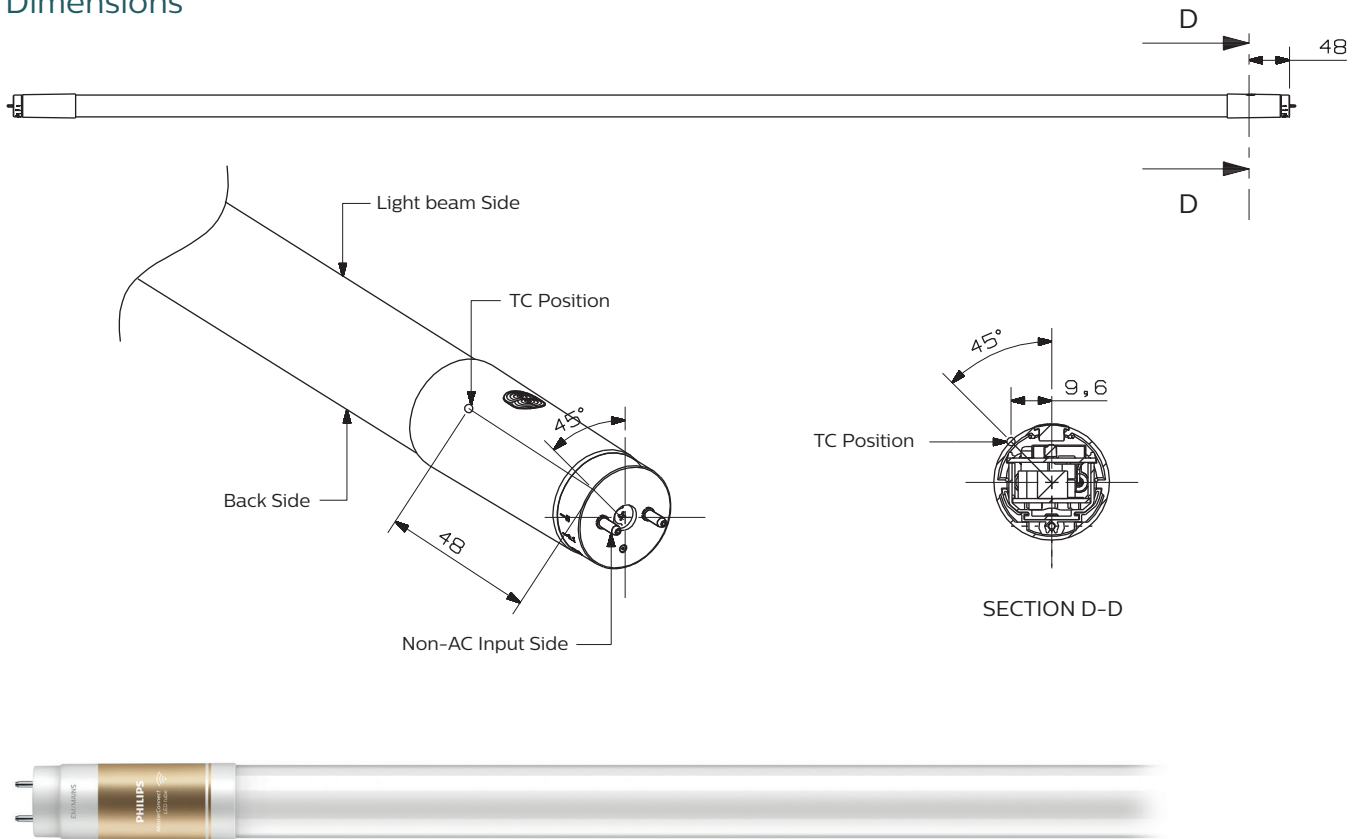
4FT



5FT

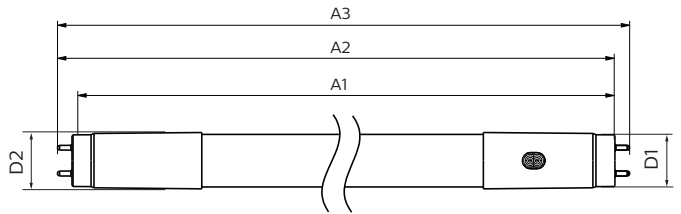


Dimensions



Dimensions (mm)

Product	A1	A2	A3	C1	D1	D2
600mm	588.6	595.7	602.8	-	25.6	27.8
1200mm	1198.1	1205.2	1212.3	-	25.6	27.8
1500mm	1498.7	1505.8	1512.9	-	25.6	27.8
EMP	-	-	-	34.5	3.0	21.5



Technical Specification

Product Number	Product Description	Lamp Wattage (W)	Equivalent Fluo Wattage (W)	Voltage (V)	Lumen Output Typical (lm)	Cap Typical*	CRI Typical*	Lifetime (hrs)	Beam Angle (°)	Length (mm)	Stand-by (W)	RF range power (m)
9290022953	MC LEDtube IA 600mm HO 7W840 T8	7	18	220-240	1050	G13	83	60000	160	600	<=0.4	12
9290022954	MC LEDtube IA 600mm HO 7W865 T8	7	18	220-240	1050	G13	83	60000	160	600	<=0.4	12
9290022104	MC LEDtube IA 1200mm UO 16W840 T8	16	36	220-240	2500	G13	83	60000	160	1200	<=0.4	12
9290022105	MC LEDtube IA 1200mm UO 16W865 T8	16	36	220-240	2500	G13	83	60000	160	1200	<=0.4	12
9290022108	MC LEDtube IA 1500mm UO 25W840 T8	25	58	220-240	3700	G13	83	60000	160	1500	<=0.4	12
9290022109	MC LEDtube IA 1500mm UO 25W865 T8	25	58	220-240	3700	G13	83	60000	160	1500	<=0.4	12

* Minimum CRI is 80.

Approbation & Certificates

Philips MasterConnect LEDtube EM/Mains T8 strictly follows applicable legislation and standard. The product complies with **CE, KEMA, TUV, RoHS** and **REACH**.



Application Notes

- Product is dimmable by wireless control
- Suitable for damp locations
- Reliable operation between -20 °C to + 45 °C ambient temperature
- Not intended for use in emergency luminaires
- 600mm product is not intended for series operation
- Modifications to the product void the limited warranty. For warranty information, please see www.philips.com/lighting
- You are required to read and understand the Quick Installation Guide and all warnings, cautions and other materials related to installation before commencing installation work.



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09/2020

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